

TECHNOLOGY VALUATION REPORT

Organic Ginseng Cultivation Facility & Methods

Applicant: GreenLife Co., Ltd.

Patent No: 10-1630950

Evaluation Date: December 1, 2017

Purpose: MAFRA R&D Evaluation

Evaluating Agency
Darwin International Patent Law Firm

Evaluation Summary

Final Technology Value

\$ 1,806,154

approx. USD 1.81 million

Economic Life
of Technology

10 Years

incl. 3-yr commercialization

Discount Rate
(WACC-based)

11.05%

tech commercialization risk

FCF Present
Value Sum

\$7.85M

million USD

Technology
Contribution

23%

KISTI model / C10 food mfg.

Technology Overview

Patent No: 10-1630950 **Registered:** Jun. 09, 2016 **Owner:** GreenLife **Expires:** Jun. 24, 2034 **Inventor:** Kim Ok-Hwa

Rainwater Blocking

Prevents direct rainfall on ginseng inside the greenhouse, blocking pathogen exposure

Hexagonal Water Supply

Magnetized water restructuring & sterilization via silver-coated body for high-quality growth water

Climate Control

Shading, temperature & humidity regulation to maintain optimal ginseng growth conditions

Pesticide-Free Cultivation

Fully isolated indoor environment enables organic ginseng cultivation without pesticides

By-product Utilization

Full use of leaves, flowers, stems beyond root — tea, coffee, cosmetics and more

Shortened Growth Cycle

Optimal environment reduces cultivation period and increases overall yield

Technology Environment Analysis



Domestic & International Trends

- Active R&D by integrating plant factory technologies
- Pesticide reduction trend through isolated indoor environments
- Expanding by-product utilization (ginseng leaf as fresh-cut vegetable)
- Global acceleration of facility farming due to climate change
- Significant expansion of government support programs
- 4–6 year growth cycle creates capital turnover burden → technology essential



Competitive Landscape

- Farms shifting from raw ginseng to processed by-products (leaves, flowers, marc)
- Partial adoption of sprout facility farming (ginseng recognition weak, pesticide issues)
- High saponin content in ginseng by-products driving consumer demand
- RDA projects field cultivation will be impossible within decades
- This technology emerging as prime alternative to field-grown ginseng
- Similar by-product market still early stage — first-mover opportunity

Rights Analysis

Comprehensive Score: 67.8 pts | Above Comparable Tech Average (65.2 pts) | Top 61.1 Percentile

Rights

25 pts

BBB

Technology

16.3 pts

B

Applicability

26.6 pts

CCC

Prior Art Conflict Analysis

Patent No.	Title	Applicant	Conflict
KR 10-1759179	Mobile bed ginseng cultivation system	Gyeongbuk Agric. Tech. Inst.	None
KR 10-1459007	Organic ginseng cultivation greenhouse	Chungnam Nat'l Univ. LINC	None
KR 10-1385566	Env.-controlled ginseng greenhouse	Chungbuk Nat'l Univ. LINC	None
KR 10-1321802	Organic seedling house cultivation method	GreenLife	None

Market Analysis

\$967M

2015 Ginseng Product
Shipment Value (+20.3% vs 2011)

~97%

Market Share of
Red Ginseng Products

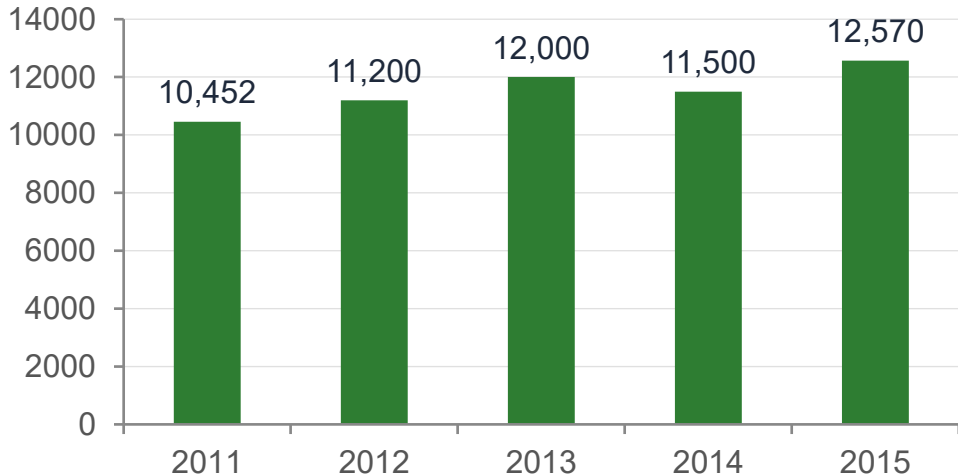
4,987t

2015 Export Volume
(+35% vs 2011)

42.8%

Consumers citing
Immunity Boost as #1 reason

Ginseng Product Shipment Trend (Billion KRW)



Market Growth Outlook

- Rapid growth of ginseng by-product exports
- Expanding consumer markets in China & Japan
- Ginseng coffee & leaf tea forming independent submarkets
- Diversification into capsules & sticks driven by convenience demand

Business Viability Analysis



Management Team

- CEO Kim Ok-Hwa: 20 yrs GreenLife
- Chairman Han Yong-Hwan: 40 yrs agri. research
- Director Han Seong-Jae: 3 related patents



Company Status

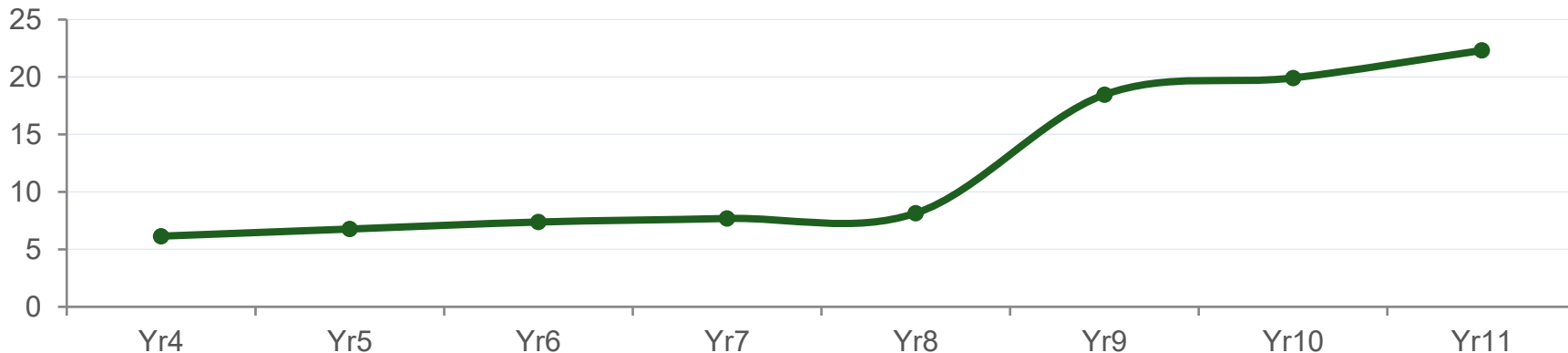
- Founded 2016, 5 employees
- Small-scale agri-food company
- Years of accumulated ginseng cultivation know-how



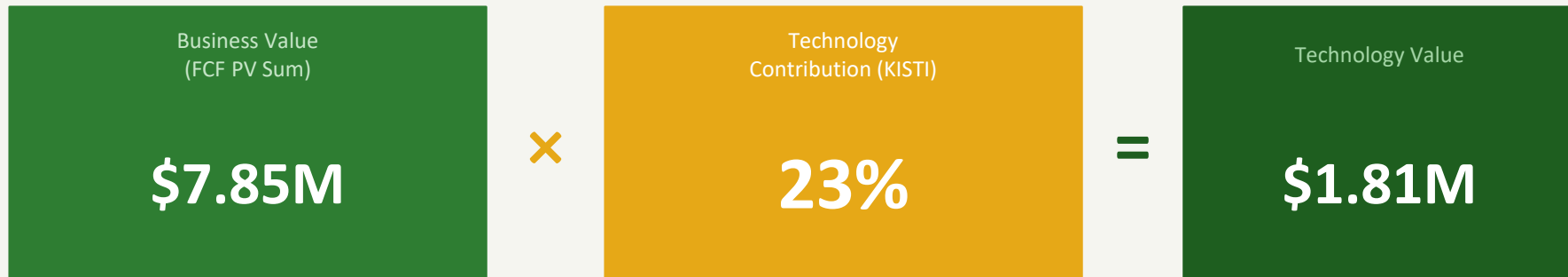
Licensing & Plans

- Business license obtained
- Mid/long-term business plan established
- Sales channel contacts with ginseng buyers underway

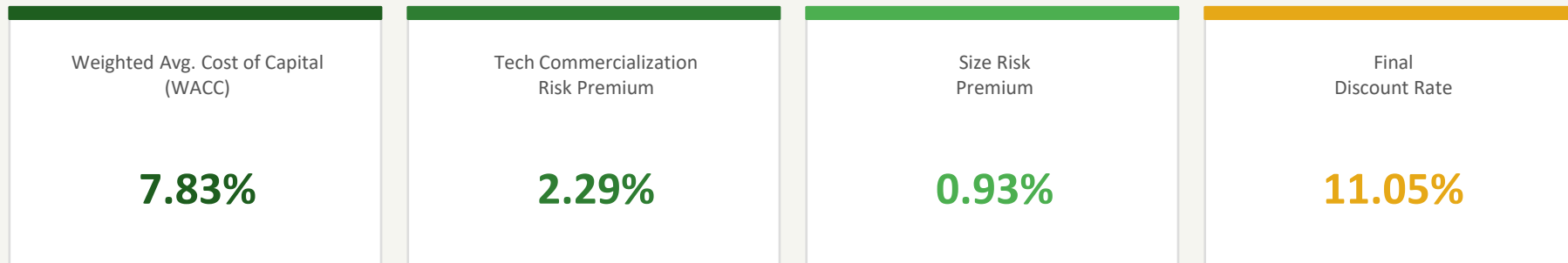
Projected Revenue (based on domestic coffee market, million USD)



Technology Value Calculation



Discount Rate Breakdown



Economic Life: 10 years | TCT Median Q2 = 8 yrs (IPC: A23F) | Incl. 3-year commercialization prep period

Summary & Conclusion

Technology

Integrated indoor organic cultivation, hexagonal water, sterilization, and climate control → mass production of premium ginseng. TRL T4 (Commercialization Stage) achieved.

Rights

Overall score 67.8 pts — top 61.1%. Very low conflict risk with prior patents. Multiple claims secured.

Market

Clear growth in by-product markets (ginseng coffee, leaf tea). Expanding export trends. High first-mover advantage potential.

Business

40-year research expertise, completed licensing, active sales channel development. Facility-grown organic ginseng expansion underway.